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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,335	03/30/2004	Hag-ju Cho	5649-877DV	5111

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EXAMINER

PRENTY, MARK V

ART UNIT	PAPER NUMBER
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2822

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/813,335

Applicant(s)

CHO ET AL

Examiner

MARK V. PRENTY

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) 42-57 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-31 is/are allowed.
- 6) ☒ Claim(s) 32,33,40 and 41 is/are rejected.
- 7) ☒ Claim(s) 34-39 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date March 30, 2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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This Office Action is in response to the papers filed on March 30, 2004.

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-41, drawn to a semiconductor substrate, classified in class 257, subclass 310.
- II. Claims 42-57, drawn to a method of making a semiconductor device, classified in class 438, subclass 239.

The inventions are distinct, each from the other because:

Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the process as claimed can be used to make a stacked gate device.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Robert Meeks on July 8, 2005, a provisional election was made without traverse to prosecute the invention of Group I, claims 1-41. Affirmation of this election must be made by applicant in replying to this Office action. Claims 42-57 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

The specification's "Claim For Priority and Related Application" paragraph (pg. 1) must be amended to include the parent application's patent number (i.e., United States Patent 6,740,531).

Claims 32, 33, 40 and 41 are rejected under 35 U.S.C. 102(e) as being anticipated by United States Patent 6,204,158 to Hendrix et al. (Hendrix, cited in the Information Disclosure Statement filed on March 30, 2004).

With respect to independent claim 32, Hendrix discloses an integrated circuit (see the entire patent, including the Fig. 3 disclosure), comprising: a ferroelectric dielectric region 255 on a substrate; a first metal oxide layer 275 directly on the surface of the ferroelectric dielectric region; and a second metal oxide layer 257 on the first metal oxide layer (see column 8, lines 17-23, together with column 6, lines 7-25), wherein the first metal oxide layer is configured to enable a remnant polarization of the ferroelectric dielectric region to increase during an annealing of the substrate before formation of the second metal oxide layer (see column 7, lines 51-55).

Claim 32 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Hendrix.

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With respect to dependent claim 33, Hendrix's first metal oxide layer 275 is about 1-10 nm thick (see column 7, lines 49-50), which is thick enough to substantially impede diffusion of hydrogen into the ferroelectric dielectric region (see United States Patent Application Publication 2002/0063274 (to Kanaya et al.), cited in the Information Disclosure Statement filed on March 30, 2004, at paragraphs [0145] and [0151]).

Claim 33 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Hendrix.

With respect to dependent claim 40, Hendrix's ferroelectric dielectric region 255 is a dielectric of a capacitor 250.

Claim 40 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Hendrix.

With respect to independent claim 41, Hendrix's ferroelectric dielectric region 255 comprises a ferroelectric material selected from the group consisting of  $\text{SrTiO}_3$ ,  $\text{BaTiO}_3$ ,  $(\text{Ba}, \text{Sr})\text{TiO}_3$ ,  $\text{Pb}(\text{Zr}, \text{Ti})\text{O}_3$ ,  $\text{SrBi}_2\text{Ta}_2\text{O}_9$ ,  $(\text{Pb}, \text{La})(\text{Zr}, \text{Ti})\text{O}_3$  and  $\text{Bi}_4\text{Ti}_3\text{O}_{12}$  (see column 6, lines 26-62).

Claim 41 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Hendrix.

Claims 34-39 are objected to as being dependent upon a rejected base claim, but would be allowable over the prior art of record if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 1-31 are allowable over the prior art of record.

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The prior art of record does not disclose or suggest the allowable memory device taken as a whole, including the multi-layered encapsulating layer.

United States Patent 6,740,531 is related to this application.

Registered practitioners can telephone the examiner at (571) 272-1843. Any voicemail message left for the examiner must include the name and registration number of the registered practitioner calling, and the Application/Control (Serial) Number. Technology Center 2800's general telephone number is (571) 272-2800.

*Mark V. Prenty*  
Mark V. Prenty  
Primary Examiner